

# LOYOLA UNIVERSITY

## COLLEGE OF LIBERAL ARTS AND SCIENCES

*Schools of Civil Engineering  
and Architecture*

**BULLETIN**



**NEW ORLEANS, LA.**

**1922-1923**

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# LOYOLA UNIVERSITY

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## College of Liberal Arts and Sciences

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### CALENDAR

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1922.

Fri. & Sat. September 8-9.....	Entrance and Condition Examinations.
Thurs. & Fri. September 14-15.....	Registration.
Thurs. September 21.....	Opening of Classes.
Wed. November 1.....	All Saints' Day. Holiday.
Thurs. November 30.....	Thanksgiving. Holiday.
Fri. December 8.....	Feast of the Immaculate Concep- tion. Holiday.
Sat. December 23.....	Christmas Vacations begin.

1923.

Wed. January 3.....	Classes resumed. Repetition for Session Examinations begin.
Thurs. February 1.....	Second Term begins.
Tues. February 13.....	Mardi Gras. Holiday.
Thurs. March 29.....	Easter Vacations begin.
Tues. April 3.....	Classes resumed.
Tues. May 1.....	Repetitions begin.
Mon. May 21.....	Pentecost Monday. Holiday.
Fri. June 8.....	Commencement.

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The Legal and Corporate Title of the University is:

“LOYOLA UNIVERSITY, NEW ORLEANS, LOUISIANA.”

All donations, endowments, legacies, bequests, etc., should be made out under this title.



## OFFICERS AND FACULTY

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LOYOLA UNIVERSITY, NEW ORLEANS.

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Latin.

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Chemistry and Biology.

REV. F. X. TWELLMAYER, S. J.,  
Dean of Summer School.

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### THE JESUIT SYSTEM OF EDUCATION.

Education, as understood by the Fathers of the Society of Jesus, in its complete sense, is the full and harmonious development of all those faculties that are distinctive of man. It is not, therefore, mere instruction or the communication of knowledge. In fact, the acquisition of knowledge, though it neces-

sarily accompanies any right system of education, is a secondary result of education. Learning is an instrument of education, not its end. The end is culture, and mental and moral development.

The purpose of the mental training given in the undergraduate courses is not proximately to fit the student for some special employment or profession, but to give him such a general, vigorous and rounded development as will enable him to cope successfully, even with the unforeseen emergencies of life. While giving the mind stay, it tends to remove the insularity of thought and want of mental elasticity, which is one of the most hopeless and disheartening results of specialism in students who have not brought to their studies the uniform mental training given by a systematic college course.

Understanding, then, clearly, the purposes of education, such instruments of education, that is, such studies, sciences or languages are chosen as will most effectively further that end. These studies are chosen, moreover, only in proportion and in such numbers as are sufficient and required.

It is fundamental in the system of the Society of Jesus that different studies have distinct and peculiar educational values. Mathematics, the Natural Sciences, Language and History are complementary instruments of education to which the doctrine of equivalence cannot be applied. The specific training given by one cannot be supplied by another.

A special importance is attached to the classic tongues of Rome and Greece. As these are languages with a structure and idiom remote from the language of the student, the study of them lays bare before him the laws of thought and logic, and requires attention, reflection and analysis for the fundamental relations between thought and grammar. In studying them the student is led to the fundamental recesses of language. They exercise him in exactness of conception in grasping the foreign thought, and in delicacy of expression in clothing that thought in the dissimilar garb of the mother-tongue. While recognizing, then, in education, the necessity and importance of Mathematics and the Natural Sciences, which unfold the inter-dependence and the laws of the world of time and space, the Jesuit system of education has unwaveringly kept Language in a position of honor as an instrument of culture.

### GENERAL STATEMENT.

In response to a general demand from the public and to meet the wishes of His Grace, Archbishop Blenk, the Jesuit Fathers opened a Catholic University in New Orleans in the Fall of 1911. This University is a part of the great Jesuit University System, which numbers an actual attendance of over fifty thousand students. Its aim is to put a heart and a conscience into secular instruction, and to vitalize knowledge by the influence of fundamental religious principles.

The Jesuit system of education aims at developing, side by side, the moral and intellectual faculties of the student, and sending forth to the world men of sound judgment, of acute and rounded intellect, of upright and manly conscience.

The various courses offered by the University are open to students irrespective of creed, and the religious tenets of all are studiously respected. Nevertheless, the course of instruction in all branches supposes the existence of God, and man's entire dependence upon the Supreme Being. The pernicious effects of Materialism, Skepticism, Rationalism, etc., will not be permitted to exercise influence in any course, professional or non-professional, nor will any statement or theory conflicting with Divine revelation be countenanced. Moreover, God's holy commandments will be esteemed and revered, and our young men will be taught a code of ethics which will acknowledge God's rights and supreme dominion over man.

### Location and Buildings.

Loyola University is admirably situated in the garden district of the City of New Orleans, on St. Charles Avenue, opposite Audubon Park. The Prytania, Carondelet, Clio, St. Charles, Tulane, Coliseum and Henry Clay street cars make it easily accessible from all parts of the city.

The University group of buildings includes Marquette Hall, the Louise C. Thomas Hall, the McDermott Memorial Church, known as the Gesu, the Nicholas D. Burke Seismic Observatory, the Pharmacy and Auto-Mechanics buildings.

Marquette Hall, the main building, is at right angles to the central axis of the property and approximately three hundred feet from St. Charles Avenue.

The Louise C. Thomas Hall is at the southeast corner of the front quadrangle court and its main entrance is sixty feet from the Avenue.

The McDermott Memorial Church, the gift of Miss Kate McDermott in memory of her brother, the late Thomas McDermott, at the southwest corner of Marquette Hall, completes the front quadrangle.

The Nicholas D. Burke Seismic Observatory is on the main property axis and is directly in the rear of Marquette Hall, and on the central point of a future rear quadrangle. It is equipped with two seismographs, a horizontal and vertical of the Wiechert astatic type. An astronomical clock registers the exact time at which graphs are recorded.

The architecture, Tudor Gothic, has become one of the most pliable and favorable types of collegiate buildings and is extremely well adapted to church work.

The exteriors of the main buildings, which are entirely fire-proof, are constructed of lime-stone and tapestry brick of a dark and rich red color, laid with large joints of about the same tone as the limestone.

Ventilation and light have been two most important considerations in the planning and design of these buildings. Low pressure steam heat is supplied from the central power plant in the basement of the Marquette Hall.

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### AN APPEAL.

The Jesuit Fathers feel a confident hope that the friends of education will make Loyola University one of the great institutions of the South. Loyola will be a valuable asset to this community and to the entire South, when the United States of America shall have come into closer commercial and social relations with Central and South America, the West Indies and the Philippine Islands.

May she not then appeal for moral and financial support to those who believe that the integrity of our people and the permanency of our institutions rest on the principles for which she will always stand?

Loyola needs funds to establish the different departments, to endow her professional chairs and to found scholarships for deserving boys. Other institutions are the recipients of large sums. Why should not Loyola, which stands for the noblest in life, enlist the generosity and patronage of those whom God has blessed with wealth?

### Scholarships.

To found a scholarship in the College Department of Loyola University, the sum of two thousand dollars will suffice. The founder has a right to keep a student in this department in perpetuity, a new beneficiary being eligible as soon as his predecessor has either completed the course or has left the University. The honor is forfeited by any holder of scholarship whose average for two consecutive months falls below 70 per cent.

The University gratefully acknowledges the following scholarships.

Mr. W. P. Burke, three scholarships.

The Rev. A. E. Otis, S. J., scholarship donated by a friend.

The Rev. A. Biever, S. J., scholarship donated by a friend.

State Councils of K. C., two scholarships.

St. Ignatius Scholarship donated by Miss E. S. Fitch.

St. Ignatius Scholarship donated by a friend.

Scholarship donated by Men's Sodality of Jesuits Church.

Francis Xavier Wegmann Scholarship.

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### EQUIPMENT.

*Chemistry:* The lecture room and laboratories are situated on the third floor of Marquette Hall. The lecture room is equipped with all necessary apparatus and chemicals for demonstration work. Forty students are easily accommodated.

The laboratory of general chemistry and qualitative analysis is equipped with lockers and working space for sixty-four students. Thirty-two students are allowed to work at a time. There is a large fume chamber at one end of the laboratory, extra tables for titration work, a bench for centrifuge work and a store room for stock reagents.

The laboratory of Quantative Analysis is situated across the hall from the general laboratory and is equipped with furnaces, both gas and electric, titration outfits, necessary glassware, etc. The balance room is situated on the other side of the lecture room, free from vibration, heat and fumes. This laboratory will accommodate twenty students and is equipped with the necessary number of lockers. Ten students are allowed to work at a time.

The University has recently added considerably to its chemical equipment, including calorimeters, tintphotometers, microscopes, furnaces, delicate balances, etc.

The University is about to build the necessary laboratories to accommodate students for practically any class of work along chemical lines.

*Biology:* The lecture room is large and well lighted and will accommodate forty students. It is equipped with all the necessary botanical and zoological specimens for demonstration work.

The laboratory is well equipped with all working apparatus including microscopes, microtomes, lantern slides, microscopic sections, etc. The working tables are equipped with light, gas and water.

There is a special lecture room on the second floor in Marquette Hall called "The Balopticon Room." It is equipped with an up-to-date Bausch and Lomb Balopticon. This room is used for demonstration work with lantern slides, microscopic examinations and opaque projection.

*Physics:* The Physics Department occupies three rooms on the second floor of Marquette Hall and a special repair shop in the basement. The equipment includes a very large collection of apparatus for the study of mechanics and mechanical engineering, such as the Pratt Institute Applied Physics Apparatus. The equipment compares favorably with that of any university in the country. We call attention to only some of the apparatus recently acquired.

The Hilger Wavelength Spectrometer.

Schmidt and Haensch Polariscope.

Heis-Ives Tintometer.

7 Calorimeters of Dubosq, Schreiner and Kennecott Type.

Riche Calorimeter.

Kohlraush Bridge.

Standard L. and N. Co. Bridge.

Carey Foster Bridge.

McNeil Rotary Pump.

These are only some of the instruments of the collection representing an investment of some \$200,000.

*Pharmacy:* The department is fully equipped for doing excellent work. The laboratories are provided with all the necessary fixtures and conveniences for general purposes, and contain fully equipped stands with reagents; and for each student a locker with apparatus under his own lock and key. The department maintains two pharmaceutical laboratories, one for the junior class and one for the senior class. The walls of the junior pharmacy laboratory are equipped with shelving under glass doors; this shelving is arranged to give the appearance of a modern drug store. On one side are arranged furniture bottles, labeled in pharmacopœial Latin, of all the official drugs and preparations and a good number of unofficial that are used in the average drug store.

*Histology, Pathology, and Bacteriology:* These laboratories are situated on the third floor of Marquette Hall, have a northern exposure and are well lighted. The equipment consists of specially designed tables which are equipped with running water, gas, and electricity, at each student's seat. A lead trough runs in the body of the table carrying off the waste water. In this way the students do not interfere with each other and all their work can be done without leaving their seats. Besides the laboratory is equipped with the usual sterilizers, autoclaves, incubators, microscopes, and other apparatus necessary for the courses.

The laboratory has continually on hand a good supply of laboratory animals, from which we can draw for our experiments.



# TUITION FEE AND EXPENSES

## IN THE

### DEPARTMENT OF ARTS AND SCIENCES

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The tuition fee is \$100 a year, payable one-half in September and one-half in February.

Matriculation fee.....	\$10.00
Biology lab. fee.....	15.00
Chemical lab. fee.....	20.00
Physical lab. fee.....	15.00
Breakage (returnable).....	5.00
Library fee.....	5.00
Athletic fee .....	10.00

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### Board and Lodging.

Board and lodging can be had at reasonable prices within easy reach of the University.

### Religious Worship.

Although Loyola is a Catholic institution, nevertheless non-Catholics are admitted and their opinions respected. They are not required to participate in any distinctly Catholic exercises; nor shall they be refused admission to or denied any of the privileges, honors, or degrees of the University because of their religious tenets.

## **ENTRANCE REQUIREMENTS.**

Fifteen units of high school work will be required for college entrance.

"A high school unit represents a year's study in any subject in a secondary school, constituting approximately a quarter of a full year's work."

Two conditions will be allowed provided they be removed before the beginning of the second year in college. Work done for the removal of conditions will not count toward a degree.

Not less than two units will be accepted in any language. Half units will be accepted only when presented in addition to integral units in the same subject or when given for complete courses in half-year subjects, e. g. Solid Geometry. Any two of the biological sciences (Physiology, Botany, Zoology) may be combined into a continuous year's course equal to one unit.

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## **METHODS OF ADMISSION.**

### **Admission by Certificate.**

Admission by certificate is granted to students from approved secondary schools.

Credentials accepted for admission become the property of the University and are kept permanently on file. All credentials should be filed with the Registrar. They should be in his hands at least one month before the semester begins. Blank forms of entrance certificate, which are to be used in every case, may be had on application to the Registrar.

Admission on certificate is always provisional. If a student should prove deficient in any subject for which he has received high school credit, that credit may be canceled.

### **Admission by Examination.**

Applicants who are not entitled to enter on certificate must take entrance examinations in the entire number of required units. These examinations are held at the end of May and the beginning of September. It is allowed to take some of the examinations in May and the others in September. A candidate who fails in any examination in May can take it again in September.

### Admission to Advanced Standing.

Candidates for admission from other institutions of collegiate rank, which offer the same or equal courses of study, will be granted the same standing as they would be entitled to in the institution from which they come, provided that before registration they present

1. A certificate of honorable dismissal.
2. An official transcript of college credits.
3. An official certified statement of entrance credits and conditions, showing the length of each course in weeks, the number of recitations and laboratory exercises each week, the length of recitation and the mark secured.
4. A marked copy of the catalogue of the college previously attended, indicating the courses for which credit is desired.

No student will be admitted, as a candidate for a degree, after the beginning of the second semester of the Senior year.

### PREScribed ENTRANCE REQUIREMENTS.

#### For the A. B. Degree.

*Latin .....	4	Units
English .....	3	Units
Algebra .....	1½	Units
History .....	1	Unit
Science .....	1	Unit

#### For the B. S. Degree.

History .....	1	Unit
‡Algebra .....	1½	Units
‡Plane Geometry.....	1	Unit
‡Solid Geometry.....	½	Unit
Science .....	1	Unit
*Modern Lan.....	2	Units
English .....	3	Units

### Electives.

The remaining four and a half or five units may be chosen from any subjects counted for graduation in standard high schools.

Not more than one unit will be accepted in a vocational subject.

\* Students presenting fifteen units without the prescribed four units in Latin or the prescribed two units in a modern language will be given an opportunity to make up these requirements during the first two years at college.

‡ Candidates for the B. S. Degree who present fifteen units, but only two in Mathematics, will have to make up the other unit during Freshman year.

## DESCRIPTIVE OUTLINE OF ENTRANCE REQUIREMENTS.

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The following descriptive outline indicates the amount of preparation expected in each of the subjects named:

### ENGLISH.\*

*Rhetoric and Composition:* The applicant should be familiar with the principles of Rhetoric as set forth in Brook's, Scott-Denney or an equivalent. Entrance examinations in composition will test the candidate's ability to write clear, idiomatic English. The subject will be taken from his experience and observation, or from the books he presents for examination. The spelling and punctuation must be correct, the sentences well constructed. The writer must show discrimination in the choice of words and ability to construct *well-ordered paragraphs*.

### LITERATURE.

*a. For Reading:* Cooper, "The Spy," "The Last of the Mohicans;" Stevenson, "Treasure Island;" Poe, "Poems and Tales;" Scott, "The Talisman;" Longfellow, "Tales of a Wayside Inn;" DeQuincey, "Flight of a Tartar Tribe;" Eliot, "Silas Marner;" Shakespeare, "Julius Caesar;" Pope, "Essay on Criticism;" Tennyson, "Idylls of the King."

*b. For Study:* Dickens, "Christmas Stories;" Irving, "Sketch Book;" Hawthorne, "Twice-Told Tales;" Scott, "Ivanhoe;" Whittier, "Snowbound," and other poems; "Sir Roger de Coverly Papers;" Washington, "Farewell Address;" Webster, "Bunker Hill Oration;" Dickens, "David Copperfield;" Lowell, "Vision of Sir Launfal," and other poems; Lamb, "Essays of Elia;" Macaulay, "Essay on Johnson;" Garraghan, "Prose Types in Newman;" Newman, "Dream of Gerontius;" Shakespeare, "Merchant of Venice."

A knowledge of the subject matter and form of each work with an explanation of the principal allusions will be required together with the literary qualities, so far as they illustrate rhetorical principles, a biographical outline of the authors and an account of their works. (Three Units).

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\* The Uniform College Entrance Requirements in English will be accepted, as will any fair equivalent work in this department.

**LATIN.**

a. *Grammar and Composition*: The preparation in grammar and composition will require a thorough knowledge of the entire Latin grammar together with such facility in writing Latin prose as is required by one who satisfactorily completes the course of exercises prescribed by a recognized high school. The course is based on Bennett's "New Latin Composition."

b. *Reading*: Caesar's "Gallic War," four books; Nepos, "Lives" (6), may be taken in place of two books of Caesar; Cicero's "Orations Against Catiline and for Archias and the Manilian Law" Cicero's "De Senectute and Sallust's Catiline or Jugurthine War" may be taken as substitutes for three of the above orations. Vergil, four books of the Aeneid (or their equivalent from the Eclogues, or Georgics), and Ovid's "Metamorphoses." Examinations for entrance will include translation at sight of both prose and verse. (Four units).

**GREEK.**

a. *Grammar and Composition*: The preparation in grammar will require a thorough knowledge of etymology, of the syntax of cases, the rules of concord and prepositions. A working knowledge of the epic dialect; practice in metrical reading and written scansion; practice in reading at sight. For Greek the credit is three units. Composition should be based on Xenophon and test the candidate's ability to translate into Greek simple sentences with special reference to the use of forms, particularly of the irregular verbs, and the common rules of syntax.

b. *Reading*: Xenophon's "Anabasis," four books, or their equivalent; Homer's "Iliad" or "Odyssey," two books. Examinations for entrance will include translation at sight of both prose and verse. (Three units).

**FRENCH.\***

1. The first year's work should include careful drill in pronunciation and in the rudiments of grammar, abundant easy exercises designed to fix in mind the principles of grammar, the reading of 100 to 175 pages of graduated text, with constant practice in translating easy variations of the sentences read, and the writing of French from dictation. (One unit).

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\* The admission requirements in French are those recommended by the Modern Language Association of America.

2. The second year's work shall comprise the reading of from two hundred and fifty to four hundred pages of easy modern prose in the form of stories, plays, or historical or biographical sketches, constant practice in translating into French easy variations upon the texts read, frequent abstracts—sometimes oral and sometimes written—of portions of the text already read, writing French from dictation, and continued grammatical drill, with constant application in the construction of sentences. (One unit).

3. Advanced courses in French should comprise the reading of four hundred to six hundred pages of French of ordinary difficulty a portion to be in the dramatic form, constant practice in giving French paraphrases, abstracts, or reproduction from memory of selected portions of the matter read, the study of a grammar of *moderate completeness* and the writing from dictation. (One unit).

#### GERMAN.\*

1. The first year's work should comprise careful drill in pronunciation; memorizing of easy, colloquial sentences; drill upon the rudiments of grammar; easy exercises, designed not only to fix in the mind the forms and principles of grammar, but also to cultivate readiness in reproducing natural forms of expression; the reading of from 55 to 100 pages of text; constant practice in translating into German easy variations upon sentences selected from the reading lesson and in reproducing from memory sentences previously read. (One unit).

2. The second year's work should comprise the reading of 150 to 200 pages of literature in the form of easy stories and plays, practice in translating into German the substance of short and easy, selected passages, and continued drill upon the rudiments of grammar. (One unit).

3. Advanced work should include in addition to the two courses above, the reading of about 400 pages of moderately difficult prose and poetry, with constant practice in giving sometimes orally and sometimes in writing abstracts, paraphrases or reproductions from memory of selected portions of the matter read; also grammatical drill upon the more technical points of the language. (One unit).

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\* The admission requirements in German are those recommended by the Modern Language Association of America.

**HISTORY.**

1. *Ancient History*: Comprising Oriental and Greek History to the death of Alexander, and Roman History to 800 A. D., with due reference to Greek and Roman life, literature and art. (One unit).

2. *Mediaeval and Modern History*: From the death of Charlemagne to the present time. (One unit).

3. *English History*: With due reference to social and political development. (One-half or One unit).

4. *American History*: With special stress upon the national period, and Civil Government. (One unit).

**MATHEMATICS.**

1. *Elementary Algebra*: Algebra through Quadratics. The points to be emphasized are: Rapidity and accuracy in performing the four fundamental operations, factoring and its use in finding the greatest common factor and the lowest common multiple, radicals, the solution of linear equations containing one or more unknowns, the solution of quadratic equations, and the statement and solution of problems. (One unit).

2. *Plane Geometry*: The usual theorems and the constructions of good text-books. Attention should be paid to the solution of original exercises and numerical problems and to the subject of loci. It is desirable that a short course in practical Geometry should precede the study of formal Geometry. (One unit).

3. *Solid Geometry*: The usual theorems and the constructions of good text-books. Attention should be paid to the solution of original exercises and numerical problems and to the subject of loci. (One-half unit).

4. *Intermediate Algebra*: Theory of quadratic equations, remainder, theorem, radicals with equations involving them, imaginary and complex numbers, ratio and proportion, variation, arithmetic and geometric progressions and graphs. (One-half unit).

**NATURAL SCIENCES.**

*Physics*: One year's daily work in Physics, of which one-third should be laboratory work. The student should possess a thorough knowledge of the elementary principles of mechanics, heat, light, sound, electricity and magnetism, as presented in such text-books as Millikan and Gale or Carhart and Chute. Note-

books on the work done in the laboratory certified by the instructor, must be presented at the time of entrance. (One unit).

*Chemistry:* One year's daily work in Chemistry, of which one-third should be laboratory work. The student should possess a thorough knowledge of the general laws and theories of chemistry and should be familiar with the occurrence, preparation and properties of the common elements and their compounds as presented in such text-books as McPherson and Henderson, Storer and Lindsey or Remsen. Note-books on the work done in the laboratory, certified by the instructor, must be presented at the time of entrance. (One unit).

*Zoology:* One year's daily work in Zoology as presented in the text-books of Linville and Kelly, Jordan or Kellogg, with work in the laboratory and the field. A note-book on the work in the laboratory and the field, certified by the instructor, must be presented at the time of entrance. (One unit).

*Botany:* One year's daily work in Botany as presented in Bergen, Atkinson or Coulter. A note-book, certified by the instructor, describing the work done in the laboratory and the field, must be presented at the time of entrance. (One unit).

*General Biology:* A combined course in Botany, Zoology and Physiology, extending through the year, as presented in Hunter's "Essentials of Biology," or an equivalent text. A note-book on the work in the laboratory and the field, certified by the instructor, must be presented at the time of entrance. (One unit).

*Physical Geography:* One year's daily work in Physical Geography as treated in the text-books of Tarr, Davis or Dyer, with training in the laboratory and the field. Note-books on the work in the laboratory and the field, certified by the instructor, must be presented at the time of entrance. (One unit).

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### Registration.

New students must file permission to register with the Dean. No student will be registered without official entrance records.

Former students in good standing, after having paid their fees, will arrange with the Dean their schedule for the semester.



### **Testimonials and Credentials.**

All applicants for admission to the College must present satisfactory testimonials of good moral conduct. A student entering from another college must furnish from such institution a certificate of honorable dismissal before his credentials for admission will be considered.

### **Special Students.**

Mature and earnest students who are either lacking in the required entrance units or who wish to pursue particular studies without reference to graduation, may be admitted, with permission of the Dean, to such courses of their own choice as they seem qualified to take.

Such students will have to follow the same rules regarding recitations, examinations, etc. as the regular degree students.

The work done by special students cannot afterwards be counted toward a degree unless the entrance requirements be fulfilled.

### **Histology, Pathology and Bacteriology.**

Courses in these branches will be given for the benefit of special students. Histology comprises the study of normal human and animal tissues. The class is given mounted specimens and also specimens which are to be prepared and mounted.

The course in pathology comprises the study of pathological human specimens, special attention being given to neoplastic growths.

In bacteriology the course is confined to the usual bacteriological bacteria, their study, isolation and action on animals. It comprises also the various methods of diagnosis including sero-diagnosis and serology.

### **Examinations.**

1. Written tests are given in each branch every month except September and February. Examinations are held in every subject at the end of each semester.

2. A student's semester grade in each branch will be determined by the combined note in class work, monthly tests and examination. The class work and monthly tests will each count one-quarter and the examination one-half in deciding a student's semester grade.

3. Particular attention is called to what is said under the heading of Attendance.

4. Seventy per cent is the passing grade in each subject. A student receiving below sixty in any subject will be obliged to repeat that subject the following year and arrange his schedule accordingly.

5. A student receiving from 60 to 69 (both inclusive) in any subject will be allowed to take another examination at the beginning of the following semester, but only on the day appointed by the Dean. Moreover a fee of \$3 will be charged for each re-examination.

6. If the second examination is unsuccessful, no credit will be given for the subject or subjects in question.

### **Attendance.**

Students who, without previous permission from the Dean, fail to attend recitations or laboratory on the day immediately preceding or following the Christmas, Easter or Summer recess will have recorded against them three absences for each class exercise missed.

For each absence a deduction of three per cent will be made from the monthly grade in the branch in which the absence is recorded.

A student who is not present the first ten minutes of class will be marked absent. Three tardy notes will be considered as one absence.

*Registration will be cancelled:*

a. In any subject in which there is a record of more than 15 per cent absence;

b. In any subject in which a student has failed to hand in 85 per cent of the written or laboratory work assigned.

### **Conditions.**

Fifteen units, as explained under Entrance Requirements, are necessary for admission to full standing. A student, however, with thirteen units will be admitted provided he makes up the remaining two before the beginning of his second year. No one will be allowed to register in Sophomore Class who has not removed his conditions in high school work.

Conditioned students must so arrange and limit the work of the

first year as to enable them to remove their conditions within the time allowed for that purpose.

Work done for the removal of conditions will not be counted for graduation.

### **Classification of Students.**

For promotion to the Sophomore Class at least twenty-four semester credits are required; for promotion to the Junior Class, at least fifty-six; for promotion to the Senior Class, at least ninety-two.

A semester credit will not be given for any study in which the student has not obtained a final average of seventy.

### **COMBINED COURSES FOR LAW STUDENTS.**

Prospective students in Law can so arrange their courses as to receive the degree of A. B. after three years of college work and one year in the School of Law.

The schedule for such students is as follows:

#### **Freshman.**

English .....	8	Credits
History .....	6	"
Mathematics .....	8	"
Lang. ....	6	"
Logic .....	4	"
Evidences .....	2	"

#### **Sophomore.**

English .....	6	Credits
History .....	6	"
Lang. ....	6	"
Philosophy .....	8	"
Economics .....	3	"
Evidences.....	2	"

#### **Junior.**

English .....	6	Credits
Physics .....	10	"
History .....	6	"
Language .....	6	"
Public Speaking.....	4	"
Evidences.....	2	"

**REQUIREMENTS FOR DEGREES.**

The degree of A. B. or B. S. will not be conferred on any student who has not complied with the following requirements:

1. The completion of 128 semester hours of college work with a final average grade of at least 70 in each subject. In reckoning semester hours, two hours of laboratory are considered equivalent to one hour of recitation. No credit will be given for a first year course in any language unless it is followed by a second.

2. The completion of one major and of one or two minors. A major consists of six semester courses or eighteen semester hours in one department. A minor consists of twelve semester hours in one department. No prescribed Freshman course will be considered as part of a major or minor. Each student must select his major and minor before the beginning of his Junior year and must submit his selection to the Dean for approval.

3. A written thesis of at least five thousand words on some subject connected with the major and approved by the Dean.

4. At least the last year must be in residence.

5. The payment of a \$10 diploma fee.

*The requirements for the A. M. degree are:*

1. One year of resident graduate study.

2. Specialized study in at least one Major and one Minor subject chosen from the following: Psychology, Ethics, Mathematics, History, English, Physics, Chemistry, Biology, Economics, Sociology.

3. An examination in the matter studied.

4. A written thesis of at least 5000 words on a subject connected with the major or minor and approved by the Faculty.

5. A \$10 diploma fee.

The conditions for the M. S. are the same as those for the A. M. except that the major must be a science.

**SCHEDULE FOR THE A. B. DEGREE.****Freshman.**

First Term.	Periods		Second Term.	Periods	
	Per	Wk.		Per	Wk.
Latin .....	1	4	Latin .....	2	4
English .....	1	4	English .....	1	4
Greek .....	1	4	Greek .....	2	4
or Mathematics	1	4	or Mathematics	2	4
History .....	3	3	History .....	4	3
Evidences .....		1	Evidences .....		1

**Sophomore.**

First Term.	Periods		Second Term.	Periods	
	Per	Wk.		Per	Wk.
Latin .....	3	4	Latin .....	4	4
English .....	2	3	English .....	2	3
History .....	1	3	History .....	2	3
or Greek.....	3	3	or Greek.....	4	3
Mathematics ...	3, 4	3	Mathematics ...	5	3
Modern Lang...	1	3	Modern Lang...	1	3
Evidences .....		1	Evidences .....		1

**Junior.**

First Term.	Periods		Second Term.	Periods	
	Per	Wk.		Per	Wk.
Philosophy .....	1, 2	4	Philosophy .....	3, 4	4
Modern Lang...	2	3	Modern Lang...	2	3
Evidences .....		1	Evidences .....		1
Electives .....		8	Electives .....		8

**Senior.**

First Term.	Periods		Second Term.	Periods	
	Per	Wk.		Per	Wk.
Psychology .....	5, 6	4	Ethics .....	7, 8	4
Evidences .....		1	Evidences .....		1
Electives .....		11	Electives .....		11

**SCHEDULE FOR THE B. S. DEGREE.****Freshman.**

First Term.	Periods		Second Term.	Periods	
	Per	Wk.		Per	Wk.
English .....	1	4	English .....	1	4
Mathematics ....	1	4	Mathematics ....	2	4
Modern Lang.....	1	3	Modern Lang....	2	3
Chem. Lect.....	1	3	Chem. Lect.....	2	3
Chem. Lab.....	1	2	Chem. Lab.....	2	2
Evidences .....		1	Evidences .....		1

**Sophomore.**

First Term.	Periods		First Term.	Periods	
	Per	Wk.		Per	Wk.
English .....	2	3	English .....	2	3
Mathematics ....	3, 4	3	Mathematics ....	5	3
History .....	3	3	History .....	4	3
Modern Lang....	3	3	Modern Lang....	4	3
Chem. Lect. ....	4	2	Chem. Lect.....	4	2
Chem. Lab.....	4	2	Chem. Lab.....	4	2
Evidences .....		1	Evidences .....		1

**Junior.**

Second Term	Periods		Second Term	Periods	
	Per	Wk.		Per	Wk.
Philosophy .....	1, 2	4	Philosophy .....	3, 4	4
Physics Lect....	1	3	Physics Lect....	2	3
Physics Lab.....	1	2	Physics Lab....	2	2
Evidences .....		1	Evidences .....		1
Electives .....		6	Electives .....		6

**Senior.**

First Term.	Periods		Second Term	Periods	
	Per	Wk.		Per	Wk.
Psychology .....	5, 6	4	Ethics .....	7, 8	4
Evidences .....		1	Evidences .....		1
Electives .....		11	Electives .....		11

**DESCRIPTION OF COURSES.****BIOLOGY.**

1. *Zoology*: General natural history of common local vertebrates and invertebrates. The chief characteristics of phyla and principal classes of animals, including the prominent orders of insects and invertebrates. Three lecture and two laboratory periods a week.

2. External and internal structure of vertebrates, insects, mollusks and echinoderms. Three lecture and two laboratory periods a week.

3. The general physiology of the types mentioned in course 2. Comparative study of plant and animal life processes. Reproduction. Spontaneous generation. Origin of species. Variation. Mendelism. Three lecture and two laboratory periods a week.

4. *Botany*: Seeds, color, modified roots, homology of the flower, classes of plants, ecology. Three lecture and two laboratory periods a week.

**CHEMISTRY.**

1. *General Inorganic Chemistry*: The object of this course is to familiarize the student with the fundamental theories and principles of chemistry. This is done by means of lecture-demonstrations, recitations and laboratory work. Three lecture and two laboratory periods weekly one term. 5 Credits.

2. *Qualitative Analysis*: Theories and practice of analysis, the laws of equilibrium and theories of solution and electrolytic dissociation. Analysis of the more difficult metals, alloys, etc. Three lecture and two laboratory periods one term. 5 Credits.

3. *Quantitative Analysis*: This course is intended principally for those who intend to enter technical or engineering schools and embraces the typical gravimetric and volumetric processes. Two lecture and one laboratory period for both terms. 6 Credits.

4. *Organic Chemistry*: This course is arranged to meet the requirements of those who intend to study medicine after the completion of their college course. The course treats of the analysis and purification of organic compounds, embraces the paraffins, with their halogen derivatives, alcohols, ether, aldehydes, and ketones, acids, esters and the amines. Special attention is given to the carbohydrates and proteids; the aromatic hydrocarbons,

and their halogen and nitro derivatives, the aniline dyes and the phenols. This work is supplemented by laboratory practice in the preparation of qualitative analysis of typical organic compounds. Two lecture and one three-hour laboratory period both terms. 6 Credits.

### ECONOMICS.

1. Wealth, Value, Price; Natural Resources, Labor, Capital, Consumption; Industrial Organization, Industrial Progress. Elective in Junior and Senior years. 3 Credits.

2. Exchange; Money; Home Trade; Market Prices; Monometallism and Bimetallism; Commercial Credit. Elective in Junior and Senior years. 3 Credits.

3. Banks and Banking; Free Trade and Protection; International Trade; Transportation; Railroads; Corporations. Elective in Junior and Senior years. 3 Credits.

4. Real and Nominal Profits; Rent; Wages; Communism; Socialism and Division of Wealth; Taxation. Elective in Junior and Senior years. 3 Credits.

These courses consist in informal lectures based on a text and supplemented by discussions. A written thesis displaying library research will be required at the end of each course.

### ENGLISH.

1—a. *Principles of Literature*: A study of the rhetorical groundwork of good literature in order to secure a more critical appreciation of literary craftsmanship. Special emphasis will be given to the characteristics of the different types of poetry.

Texts: Slater's Freshman English. Connell's Study of Poetry.

b. *Literature*: Prose. Studies in narration, description, exposition and argumentation based on the works of Ruskin, Lamb, Carlyle, Newman, Scott, Macaulay and others.

Poetry. Milton's Lycidas and Comus; selected poems of Keats, Shelley, Wordsworth and Burns.

Texts: Scott-Zeitlin's College Readings in English Prose and Palgrave's Golden Treasury.

c. *Home Reading*: Scott's Quentin Durward, Thackeray's Henry Esmond, Blackmore's Lorna Doone, Dickens' Tale of Two Cities, Eliot's Silas Marner, Shakespeare's Tempest, Winter's Tale and Henry VIII.



d. *History of English Literature*: A general survey of the history of English literature.

Text: Abernethy's English Literature.

e. At least one written composition weekly. 8 Credits.

2—a. An analytical study of masterpieces of modern oratory both English and American.

Text: Shurter's Masterpieces of Modern Oratory. Reference: O'Neill's Models of Speech Composition.

b. *Home Reading*: The Hayne-Webster Debate, Lincoln's Gettysburg Address, Wendell Phillips' Speech on Daniel O'Connell, Woodrow Wilson on Abraham Lincoln and on The Meaning of the Declaration of Independence, Henry Grattan Against English Imperialism and his Reply to Corry, Curtis' Charge to a Jury, Grady's New South, Archbishop Ireland on "The Church and the Age."

c. Original oratorical composition weekly. Practice in preparing briefs. 6 Credits.

3. Alternates with course 4. Elective in Junior and Senior years.

a. The structural principles of epic and dramatic poetry.

Text: Connell's Study of Poetry. A critical analysis of Paradise Lost Books I and II, Macbeth, As You Like It, King Lear.

*Home Reading*: Midsummer Night's Dream, Othello, Richard III. The Antigone and Œdipus Tyrannus of Sophocles.

b. The history of the Elizabethan Drama, Shakespeare and his contemporaries, and Milton.

c. Weekly written discussions of questions treated. 6 Credits.

4. Alternates with course 3. Elective for Juniors and Seniors.

a. History of Literature: The Victorian Age, its novelists, essayists and poets. Origin and development of the English Essay.

b. Select essays by Hazlitt, Carlyle, Newman, Thackeray and Arnold.

Text: Dickinson and Roe's Nineteenth Century English

Prose. Tanner's Essays and Essay-writing.

c. *Home Reading*: Lytton's Last of the Barons, Stevenson's Dr. Jekyll and Mr. Hyde and Familiar Study of Men and Books, Thackeray's English Humorists, Newman's Apologia, Arnold's Essays in Criticism, DeQuincey's Joan of Arc, Carlyle's Essay on Burns.

d. Weekly written essays.

6 Credits.

**EVIDENCES OF RELIGION.**

1. Eschatology. Christian Morality. The Theological Virtues: Faith, Hope and Charity. (Wilmers, pp. 385-436). One hour a week, first term.

1a. The Virtues of Religion. Divine Worship. Christian Duties. Christian Perfection. (Wilmers, pp. 436-494). One hour a week, second term.

2. Grace. The Sacraments in General. Baptism. Confirmation. The Holy Eucharist. (Wilmers, pp. 279-341). One hour a week, first term.

2a. The Mass. Penance. Extreme Unction. Holy Orders. Matrimony. The Church as a Means of Salvation. (Wilmers, pp. 341-385). One hour a week, second term.

3. Revelation, Natural and Supernatural. Miracles and Prophecies. The Primitive, Patriarchal and Mosaic Revelation. The Christian Revelation. The Institution and End of the Church. (Wilmers, pp. 1-77). One hour a week, first term.

3a. The Constitution of the Church. St. Peter given the Primacy, not only of honor, but also of jurisdiction. The Pope, the Successor of St. Peter. The Infallibility of the Pope. The Marks of the Church. The Teaching Office of the Church. Sources of the Church's Teaching: Holy Scripture. Tradition. The Rule of Faith. (Wilmers, pp. 77-152). One hour a week, second term.

4. The Existence and the Nature of God. The Divine Attributes. The Unity of God. The Blessed Trinity. The Creation of the World. (Wilmers, pp. 152-219). One hour a week, first term.

4a. Creation and Fall of Man. The Incarnation. The Redemption. (Wilmers, pp. 219-279). One hour a week, second term.

**GREEK.**

1. Plato, The Apology. Homer, Odyssey, Herodotus, optional reading at sight. 4 Credits.

2. Demosthenes, Olynthiacs, I, II, III. Euripides, Hecuba. Herodotus, optional reading at sight.

Grammar: Review of Greek moods and the syntax of dependent sentences. General laws of versification. 4 Credits.

3. Sophocles, *Œdipus Tyrannus*, translation, dramatic analysis, scansion. 4 Credits.

4. Demosthenes, *De Corona*. Analysis of oratorical structure and style. Thorough acquaintance with the historical issues at stake. Plato's *Republic* Bk. I. 4 Credits.

5. *Æschylus*, *Agamemnon*. Plato, *Crito* and *Phædo*. St. Basil, *Classical Literature*. 4 Credits.

6. Aristophanes, *Birds*, or *Frogs*, or *Wasps*. Pindar, *Olympic Odes*, I, II, VI, VII. 4 Credits.

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NOTE—The courses in Latin, Greek and English are, for greater educative effect, made parallel as much as possible. The theory of the different forms of literature is presented in the English courses, and the classic masterpieces studied in the Latin and Greek course furnish illustrative material to enforce the precepts and for comparative work. Poetry, with its various forms, is the subject of Freshman year; Oratory, of Sophomore; the Drama, of Junior; the Critical and Philosophical essay, of Senior.

#### HISTORY.

1. Western Europe from the Renaissance to 1815.

Text: Hayes *Political and Social History of Modern Europe*. 3 Credits.

2. Western Europe from 1815 to the present time.

Text: Hayes *Political and Social History of Modern Europe*. 3 Credits.

3. American History from the First Settlement to the Era of Reconstruction. 3 Credits.

4. American History from the close of the Reconstruction Era to the present time. 3 Credits.

5. English History from Roman Britain to the reign of Elizabeth. 3 Credits.

6. English History from Elizabeth to the present time.

3 Credits.

These courses will consist of informal lectures based upon textbooks. Maps, charts, reports, class discussions and occasional research work will be used to stimulate interest. One paper of at least five thousand words and dealing with the period studied, will be required of each student at the close of each semester. No credit will be given in history without these papers.

7. To alternate with 5 and 6. The history of American institutions. This course will follow the lines of Bryce's American Commonwealth.

Courses 5, 6 and 7 are elective for Juniors and Seniors.

6 Credits.

## LANGUAGES.

### FRENCH.

1. Selections from Lamennais, Perrault, Dumas, Daudet, Legouv  , Pouvillon, Moli  re and Victor Hugo. Written and oral exercises in French based upon the passages studied. Drill in simple French conversation. 3 Credits.

2. L'Abbe Constantin and Racine's Iphigenie. Written themes based on the authors read. Class will be conducted exclusively in French. 3 Credits.

3. Tartarin de Tarascon; Maistre's Les Prisonniers du Caucase. Weekly practice in French letter-writing and short narrations and descriptions. Recitations are entirely in French.

*Home Reading:* Moli  re's Bourgeois Gentilhomme, Daudet's La Belle-Nivernaise and other stories. 3 Credits.

4. Erckman-Chartrian's Madame Therese; Bourget's Extraits Choisis.

*Home Reading:* Coppee's On Rend l'Argent, Corneille's Le Cid. Advanced French Composition. 3 Credits.

5. Elective in Senior Year. A critical study of Corneille's Horace, Moli  re's L'Avare, Racine's Athalie, Chateaubriand's Les Aventures du Dernier Abencerage.

*Home Reading:* Rostand's Cyrano de Bergerac, Bazin's Le Bl   qui leve. Weekly French Essay. 6 Credits.

### LATIN.

1. Cicero, Pro Archia. Horace, Ars Poetica. Vergil,   neid, Book II, V, VI, or IX. Livy, Book XXI, CC. 1-20, and for reading at sight CC. 21-25. 4 Credits.

2. Cicero, De Signis, Second Philippic, or Pro Marcello. Horace, Odes. Livy, Book XXI, CC. 35-54, and for reading at sight CC. 55-63. 4 Credits.

3. Cicero, Pro Lege Manilia. Horace, Epodes, Satires, Epistles, Carmen Sacculare. Tacitus, Agricola, and for reading at sight, Germania. 4 Credits.

4. Cicero, Pro Milone and Pro Ligario. Juvenal, Satires. Tactius Annales. 4 Credits.

Besides thorough drill in Latin syntax, prosody, and versification, the student is given frequent practice in Latin composition and in elegant, idiomatic English translation. Special stress will be laid on the style and structure of the ancient classical masterpieces and they will be studied side by side with specimens of our best modern literature.

### SPANISH.

1. Selections from Spanish authors and weekly themes based on these selections. Practice in simple conversation.

*Home Reading:* Cuentos Hispano-americanos; Alarcon's El Capitan Veneno. 6 Credits.

2. Zaragueta and Quintano's Balboa.

*Home Reading:* Valera's El Pajaro: Verde and Calderon's La Vida es Sueno.

Practice in advanced composition and fluent conversation. 6 Credits.

3. An advanced course devoted to commercial correspondence and the study of classical Spanish literature.

Practice in Spanish commercial correspondence and discussions conducted in Spanish. 6 Credits.

### MATHEMATICS.

1. Plane and Spherical Trigonometry. 4 Credits.

2. Higher Algebra: Progressions, Indeterminate Coefficient, Binominal Theorem, Common Logarithms, Interest and Annuities, Choice, Chance, Continued Fractions, Variables and Limits, Determinates. 4 Credits.

3. Plane Analytic Geometry: Loci and their Equations. The Straight Line. The Circle. Different Systems of Coordinates. The Parabola. The Ellipse. The Hyperbola Loci of the Second Order, Higher Plane Curves. 1½ Credits.

4. Solid Analytic Geometry: The Point. The Plane. The Straight Line. Surfaces of Revolution. 1½ Credits.

5. Elective in Junior and Senior. Differential Calculus: Introductory Problems. Algebraic Notions used in the Calculus. Infinitesimals, Derivatives, Differentials, Anti-Derivatives, Anti-Differentials. Differentiation of the Ordinary Functions. Some

Geometrical, Physical and Analytical Applications. Geometric Derivatives and Differentials. Successive Differentiation. Differentiation of Functions of Several Variables. Evolutes and Involutives. Rolle's Theorem. Theorems of Mean Value. Special Topics Relating to Curves. Infinite Series. Taylor's Theorem. Application to Surfaces and Twisted Curves. 4 Credits.

6. Elective in Junior and Senior. Integral Calculus: Integration. Elementary Integrals. Simple Geometrical Applications of Integration. Integration of Irrational and Trigonometric Functions. Approximate Integration. Mechanical Integration. Integration of Infinite Series. Successive Integration. Multiple Integrals. Applications. Further Geometrical Applications of Integration. On Centre of Mass and Moment of Inertia. Differential Equations. 4 Credits.

#### PHILOSOPHY.

1. *Logic*: Classification and use of ideas and terms. Judgments and propositions. The laws of the Syllogism. Inductive and deductive reasoning. 2 Credits.

2. *Applied Logic*: This course will embrace a study of the possibility, nature, sources and criteria of certitude. Special attention will be given to the teaching of different schools of philosophy on these subjects particularly those of Bacon, Hobbes, Locke, Berkely, Descartes, Kant, Fichte, Schelling, Hegel and Comte. 2 Credits.

3. *Metaphysics*: The notion and transcendental properties of Being. Substance and accidents. Analysis of causes. The causation of the order of nature as *the effect of cause*. 2 Credits.

4. The mechanical and scholastic theories of the universe. The scientific and philosophical aspects of a mechanical theory are specially emphasized. Dynamic Atomism. 2 Credits.

5. *Psychology*: Scientific idea of life. Morphology and Physiology of the cell. The human organism and its functions. Philosophic definition of life. Anatomical and physiological aspect of sensation and movement. Psychological aspect of movement. Origin of life. Theory of Evolution. 1½ Credits.

6. Rational life. Acts and faculties peculiar to man. The intellect and will. Comparative psychology of animal and man. Origin of man. Immortality of the soul. The Existence of God.

7. *Fundamental Ethics*: The intrinsic difference between

moral good and moral evil. The Moral Law. The subjective criterion of morality. The sanction of the moral law.

2 Credits.

8. *Special Ethics*: Rights and duties. Rights of the individual, the family and the State. Origin of the State and of civil authority. The rights and limitations of civil authority.

2 Credits.

### PHYSICS.

1. *General Physics*: Mechanics, Sound, Light, Heat, Magnetism and Electricity. Should be accompanied by a course in Plane Trigonometry.

1a. Lectures, experimental demonstrations and recitations, two hours per week. 4 Credits.

1b. Laboratory, four hours per week, both semesters. 4 Credits.

2. *General Physics*: A more mathematical and more complete treatment of the general principles of the subject than that given in 1a. Should be preceded by a course in Plane Trigonometry.

2a. Lectures, experimental demonstrations and recitations, three hours per week, both semesters. 6 Credits.

2b. Laboratory, four hours per week, both semesters. 4 Credits.

3. *Advanced Physics*: A theoretical course in Mechanics, Molecular Physics, Light and Sound. Must be preceded or accompanied by a course in Calculus. Prerequisite: Course 1a or 2a. Two lectures per week, both semesters. 4 Credits.

4. *Electric Oscillations and Electromagnetic Waves; Radio Communication*: Prerequisite: Course 1a and a Course in Calculus. Lectures two hours per week, one semester. 2 Credits.

5. *Experimental Physics*: Advanced laboratory work in Light, Heat and Electricity. Prerequisite: Course 1a and 1b and a course in Calculus. Four hours per week, both semesters.....4 Credits.

**PUBLIC SPEAKING.**

Dramatic and oratorical practice. Declamation, extempore speaking, debates, criticism and discussion of interpretation and delivery. 2 Credits.

**SOCIOLOGY.**

1. Meaning and scope of sociology as a science. Elements of the social organism—the individual, the family, the State and the Church—in their relations to one another and to social welfare. Principles underlying possible and desirable social reform; influences effective for such reform. History of social reform and its relation to present problems solved. 4 Credits.

2. Applications of the principles of sociology to specific social problems. Labor Question, Immigration, Poverty, Housing, Unemployment, Hygiene, Homework, Vocational and Cultural Training, Socializing School Societies, etc. Study of the Guilds and modern co-operative social work. 4 Credits.

**PRE-MEDICAL COURSE.**

The object of this course is to prepare students for the study of medicine. The entrance requirements are the same as for the regular college courses.

**Fees.**

Tuition .....	\$120
Matriculation .....	10
Biological lab. ....	15
Chemical lab. ....	20
Physical lab. ....	15
Breakage (Returnable) .....	5
Library fee .....	5
Athletic .....	10



**SCHEDULE OF STUDIES.****First Year.**

First Term.	Periods		Second Term.	Periods	
	Per	Wk.		Per	Wk.
English .....	1	4	English .....	1	4
Chemistry Lect.	1	3	Chemistry Lect.	1	3
Chemistry Lab.	1	2	Chemistry Lab.	1	2
Biology Lect....	1	3	Biology Lect....	2	3
Biology Lab.....	1	2	Biology Lab....	2	2
Modern Lang... 1		3	Modern Lang... 2		3
Evidences .....		1	Evidences .....		1
Philosophy .....	1, 2	4			

**Second Year.**

First Term.	Periods		Second Term.	Periods	
	Per	Wk.		Per	Wk.
Physics Lect....	1	3	Physics Lect....	2	3
Physics Lab....	1	2	Physics Lab.....	2	2
Chem. Lect.....	3	3	Chemistry Lect.	3	3
Chem. Lab.....	3	2	Chemistry Lab.	3	2
Psych. ....	5, 6	4	Ethics .....	7, 8	4
Evidences .....		1	Evidences .....		1
Freehand					
Drawing .....		2			

**EXTENSION COURSE.**

The classes of the Extension Courses begin on the first Saturday of October and close on the last Saturday of May. Classes are held from 9 to 12 each Saturday.

The object is to prepare candidates for the A. B. and B. S. degrees. The fees are \$20.00 a year, irrespective of the number of courses.

**Schedule.**

- 9—10 Latin, Sociology and English.
- 10—11 Mathematics, History and Sociology.
- 11—12 Philosophy and Spanish.

## **SCHOOL OF ENGINEERING.**

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A. M. SHAW,

(Member of American Institute of Consulting Engineers,)

Dean.

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### **Historical.**

The Loyola School of Engineering is the youngest of the departments of the University, as it was not opened until October, 1920.

### **Course of Studies.**

For the present, a course in Civil Engineering only is offered. This includes the basic studies of Mathematics, English, Sciences and Modern Languages which are universally offered in technical courses. While the general scheme of studies follows quite closely, that of the most successful engineering schools of the country, a departure is made in the matter of individual instruction and in the selection of certain subjects which are of particular local interest and application. A well balanced course will be maintained but, owing to their importance in this section of the country, especial attention will be given to the following subjects:

Foundations in alluvial soils.  
Land reclamation by drainage.  
River regulation.  
Shore protection.  
Climatology.

### **System of Instruction.**

During the first two years of the course, the class work is similar to that of the College of Arts and Sciences excepting that special work is done in mechanical and freehand drawing and in addition to this, two hours per week are given to special engineering study and practice. This work consists of field practice in surveying, map making, inspection of local engineering works and attendance at lectures by practicing engineers on engineering subjects.

Realizing the handicap under which so many engineers of the country have suffered, through their lack of ability in the use of clear, concise and forceful English, the importance of this study will be stressed throughout the course and in addition to the regular University work, special training will be given in report and specification writing.

During the Senior year, the students in the School of Engineering will have the opportunity of attending lectures on the "Law of Contracts" by local attorneys who are especially well qualified to speak on the subject.

### **Sessions.**

The sessions are the same as for the regular college courses.

### **Requirements for Admission and Graduation.**

The requirements for admission to the School of Engineering are the same as for the School of Arts and Sciences.

The degree of Bachelor of Civil Engineering will be granted on the satisfactory completion of the four years course prescribed.

### **Registration.**

The dates and conditions of registration are the same as those for the college courses.

### **Library.**

In addition to the excellent general library of the University, the School of Engineering has secured a small but a most excellent technical library which was selected with its special purpose in view. Only books by recognized authorities have been purchased. The general field of Civil Engineering is well represented by the books already secured and new works will be purchased from time to time to keep the library thoroughly up-to-date. While students will be required to furnish their own text-books and will be encouraged to acquire, during their college course, a few of the reference books which they will need in the practice of their profession, the bulk of the expensive reference books so necessary in the study of engineering, will be kept in this special library where they will be available for use by the students as they may be required.

### **Equipment.**

Prior to the opening of the School of Engineering, Loyola University secured the advice and assistance of the best talent available in the selection and the purchase of complete sets of field survey equipment. This includes the most modern types of Plain Transits, Railway Transits, Solar Attachments, standard "Y" Levels, "Dumpy" Levels, Plane Tables, various types of measuring tapes and all the accessories necessary for fitting out several complete field parties. The quality and completeness of this equipment is not surpassed by any school in the South, if by any in the country.

### **Field Practice.**

During the Freshman year, exercises are given in the simpler appliances such as engineers' chains and tapes. Following this, instruction is given in the use of the compass, the transit and the level. Not only the use, but also the proper care and adjustment of all instruments employed, are taught. So far as practicable, actual problems are used for the field exercises. During the past year, the class carried out the following practical work, the instructive value of which was enhanced by the fact that it served a useful purpose:

They made a topographic survey of the main campus, platting the three principal buildings to true scale.

Assisted in making the location survey of the new road for the front campus.

Preliminary survey of the athletic field to determine its suitability for a foot ball field and later staked out the standard grid-iron.

### **Summer Camps.**

For not less than two summer vacations, engineering students will spend from two to three weeks in a summer camp where practical problems in topographic surveying, railroad location and in stream flow will be solved. Camp sites will be selected with a special view to sanitation. All work in connection with the camp operation (excepting the cooking) and all work on the surveys, will be done by the students. While serious study and practice will be the main object of these camps, recreation will receive at-

tention and opportunity will be given for bathing and for such sports as may be suitable for the season and the locality.

### **Special Students.**

Subject to certain restrictions, a limited number of special students may be admitted to the summer camps, as well as to the courses given during the year. Information may be secured by addressing A. M. Shaw, Dean of the School of Engineering, 617 Common St. Such special work will be of use to young men taking other courses who desire to learn the use of field instruments or to young men desiring to fit themselves for positions such as Rodman, Instrumentman, Building Superintendent, etc. No one will be admitted as a special student who has not had the equivalent of at least three years of High School.

Students in summer camps will bear all cost for transportation and sustenance but as the University authorities will use every effort to arrange for board, etc. at reasonable rates, the cost to the individual student will be slight. It is estimated that the total necessary expenses per student will not exceed \$50 for one summer camp, including cost of transportation. Camp equipment (including beds but not including personal bedding) will be furnished by the University.

The camp will be in charge of a responsible head and strict discipline will be maintained. Especial attention will be given to the moral and physical welfare of the students.

### **Tuition and Fees.**

The charge for tuition is \$130 a year payable one-half at the beginning of each term.

Matriculation fee .....	\$10
Chemical laboratory fee.....	20
Physical laboratory fee.....	15
Breakage .....	5
Library fee .....	5
Athletic fee .....	5

**SCHEDULE.****First Year.**

FIRST HALF	Hours Per Week	
	Class.	Lab.
Trigonometry .....	4	..
Inorganic Chemistry .....	3	3
Mech. and Free Hand Drawing..	..	4
English .....	4	..
Evidences of Religion.....	1	..
Plane Surveying .....	..	2
Modern Language .....	3	..

SECOND HALF	Hours Per Week	
	Class.	Lab.
Higher Algebra .....	4	..
Inorganic Chemistry .....	3	2
English .....	4	..
Evidences of Religion.....	1	..
Mechanical Drawing .....	..	4
Modern Language .....	3	..

**Second Year.**

FIRST HALF	Hours Per Week	
	Class.	Lab.
Analytic Geometry .....	3	..
Physics .....	3	2
Mechanics: Statics, Mechanisms	5	..
Surveying and Mapping.....	..	4
Evidences of Religion.....	1	..

SECOND HALF	Hours Per Week	
	Class.	Lab.
Differential Calculus .....	4	..
Physics .....	3	2
Mechanics .....	5	..
Elective Science .....	5	..
Evidences of Religion.....	1	..

## SUMMER VACATION—LAND SURVEYS AND HYDROGRAPHY.

### Third Year.

FIRST HALF	Hours Per Week	
	Class.	Lab.
Integral Calculus .....	4	..
Applied Mechanics .....	5	4
Engineering Geology and Foundations.....	3	2
Elem. Elec. Engineering.....	5	4
Sewer and Water System.....	3	2
Evidences of Religion.....	1	..
SECOND HALF	Hours Per Week	
	Class.	Lab.
Applied Mechanics .....	5	4
Elec. Mech. Engineering.....	3	4
Railway Engineering .....	5	..
Roads and Pavements .....	3	..
Evidences of Religion.....	1	..

## SUMMER VACATION—RAILROAD LOCATION.

### Fourth Year.

FIRST HALF	Hours Per Week	
	Class.	Lab.
Theory of Structure.....	5	..
Reinforced Concrete .....	5	..
Railroad Engineering .....	3	..
Drainage and Irrigation.....	2	2
Evidences of Religion.....	1	..
SECOND HALF	Hours Per Week	
	Class.	Lab.
Theory of Structure .....	5	..
Design of trusses and of one complete bridge.....	..	6
Accounting and Business Administration .....	5	..
Evidences of Religion.....	1	..

## ARCHITECTURE AND ARCHITECTURAL ENGINEERING

Allison Owen, A. I. A., Dean.

The comprehensive study of Architecture, must be based upon the conception of architecture as a fine art, inspired by the great works of the past and intimately related to engineering and the sciences.

The student of the art must therefore acquire, upon a foundation of the canons of art, a knowledge of the history of civilization, painting, sculpture and architecture together with those phases of science and engineering as affect its modern practice.

Many years of devoted study are required in its attainment. The student must acquire the proper attitude of mind toward his profession and must in the architecture course, seek the fundamentals which are to shape his career in life; his taste must be developed so that he may distinguish good art from that which is poor and worthless. His skill must be directed toward the acquisition of facility, of expression and the knowledge of those things essential in translating his architectural conceptions into actual buildings.

The system of instruction used is intended not only to fit a student for his later professional practice, but to give him a well rounded education in its fullest meaning.

The school provides two courses of four years each leading to the degree of Bachelor in Architecture.

1. General Architecture which treats more largely of design and the art side of the subject with only as much of the engineering side as will fit the student for general practice.

2. The course in Architectural Engineering which at the end of the second year reduces the amount of instruction in design and goes deeply into the engineering side, which has acquired such importance during the past few years in America.

Care is taken however, that students of both courses should realize the intimate interdependence of both and that their common object is the development of the highest ideals in their chosen profession.

The Freshman year is largely preparatory, comprising mathematics, literature, language, history, freehand and mechanical drawing, including shades and shadows perspective and elementary engineering.



In the Sophomore year, architectural design is begun and continued through succeeding years with increasing importance in the general course. Architectural Engineering students in the third and fourth years, in place of architectural design, take up the engineering subjects applicable to architecture such as structural design, theory of structures, applied mechanics and materials.

All students however, are required to take the courses of lectures on architectural history, European civilization and art for the purpose of developing an appreciation for the great periods of art and for the rounding out of a well balanced education.

### **Mechanical Drawing.**

During the Freshman year, students will be taught the use of instruments and the methods of presentation used by architects in preparing plans for the execution of work.

### **Descriptive Geometry.**

During the first term of the Sophomore year, a short course in the handling of points, lines, planes and solids in the planes of projection will be given.

### **Shades and Shadows.**

The student will be taught the conventional methods of ascertaining and representing the shades and shadows used by architects in designing buildings and in preparing academic renderings of them.

### **Perspective.**

The theory as well as the practical office methods of preparing drawings of buildings and interiors is taught both in angular and parallel perspective.

### **Steriotomy.**

A short course is given in methods of handling and laying out stone, terra cotta and brick jointing, together with the making of patterns for the execution of the work.

### **Graphical Statics.**

The resolution of forces and its application to the graphical methods of determining strains in struts and ties of simple bridge and roof trusses will be taught.

### **Freehand Drawing.**

In the Freshman class, the student is taught to handle a lead pencil and to develop his ability to represent on paper what he sees. This is carried to the point of out door sketching of buildings, involving perspective views. An effort is made to encourage the growth of a personal technique of expression.

In the Sophomore class, charcoal will be used in drawing from casts and fragments of architectural ornament to develop a sense of form and its relation to light and shade.

In the Junior class, the work is extended to the human figure, careful studies being made from cast of heads, busts, hands, etc. together with drapery and other accessories.

Senior year freehand drawing will be from the human figure, with an idea to its use in architectural ornament and in compositions for sculptural groups and mural decorations.

### **The Five Orders of Architecture.**

In the second term of the Freshman year, the study will be begun of the five orders of classic architecture and their application to Renaissance and Modern buildings. This course is preparatory to the course in Architectural design.

### **Architectural Design.**

The study of architecture design is begun in the second year and is conducted on the system used in the Ecole des Beaux Arts of France. Monthly rendered problems alternate with sketch problems graded to the developing ability of the student and culminating in a thesis, to which the last half of the senior year is given. Academic rendering is taught and upper classmen are encouraged to co-operate with lower classmen in assisting their development in return for assistance of lower classmen in rendering large drawings for their seniors.

### **Architectural History.**

Lantern slide lectures will be given upon the architecture of the past and as far as possible the student will be made familiar with the great works of antiquity and modern times for the educational and inspirational value to be derived. During the first year the architecture of ancient Egypt, Assyria, Persia, Greece and Rome

will be discussed and the foundation laid for the study of medieval and modern work.

In the Sophomore year, the architecture of the early Christians in Rome, Venice, Ravenna and Byzantium will be studied and the art of the Saracenic world will be reviewed.

In the Junior year, the work of Europe during the Romanesque and Gothic periods will be studied covering the western art, from the ninth to the fifteenth centuries including the great Cathedral building period.

The Senior year will be devoted to the Renaissance from its origin in Italy through its transition under Francis I through the great periods down to the present with a careful study of our own colonial inheritance and the best work of to-day, both in America and Europe.

### **Water Color.**

In the Sophomore year, water color work will be begun and will continue through the rest of the course. Still life groups, outdoor sketching, color combination in design. An effort will be made to develop the students sense of color and to stimulate a free use of color in architectural work.

### **Pen and Ink.**

In the Sophomore year, the subject of rendering with pen and ink will be taken up and students trained in making drawings for line reproduction. The technique of the old masters will be studied and the works of modern etchers discussed.

### **History of Painting and Sculpture.**

Lantern slide lectures will be given in the senior year upon the arts of painting and sculpture, with the idea of cultivating the taste of students, to recognize good art and to appreciate its proper architectural setting and uses in buildings.

### **Heat and Ventilation.**

The subject of the proper heating and ventilating of buildings will be discussed particularly as applied to schools, audience halls and other places where numbers of people gather for considerable periods.

In addition to the above, the student will take the regular college course in Literature, Mathematics, History, Language (French) with short courses in Physics and Chemistry.

### SCHEDULE.

#### First Year.

##### FIRST HALF.

	Hours Per Week	
	Class.	Lab.
Trigonometry .....	5	..
Mechanical Drawing .....	..	2
Freehand Drawing .....	..	2
English .....	4	..
French .....	4	..
Evidences of Religion.....	1	..
Architectural History .....	1	1

##### SECOND HALF.

	Hours Per Week	
	Class.	Lab.
Higher Algebra .....	4	..
Chemistry: General, Applied to Building Material.....	3	..
English .....	4	..
Evidences of Religion.....	1	..
French .....	4	..
Mech. Draw.: Deser. Geom., Shades and Shadows, Per- spective .....	..	4
Freehand Drawing .....	..	2
Architectural History .....	1	1

# **SUMMER VACATION—MEASURED DRAWING OF SOME BUILDING.**

## **Second Year.**

### **FIRST HALF.**

	Hours Per Week	
	Class.	Lab.
Analytic Geometry .....	5	..
Physics .....	4	..
French .....	3	..
Evidences of Religion.....	1	..
Orders of Architecture .....	..	2
Freehand Drawing .....	..	2
Pen and Ink Drawing.....	..	1
Water Color .....	..	2
History of Architecture.....	1	1

### **SECOND HALF.**

	Hours Per Week	
	Class.	Lab.
Diff. & Integ. Calculus.....	5	..
Physics .....	4	..
French .....	3	..
Evidences of Religion.....	1	..
Architectural Design .....	..	2
Freehand Drawing .....	..	2
Pen and Ink .....	..	1
Water Color .....	..	2
History of Architecture.....	1	1

**VACATION—ARCHITECTURAL SKETCHING.****Third Year—Architectural Engineering.****FIRST HALF.**

	Hours Per Week	
	Class.	Lab.
Applied Mechanics .....	5	4
Engineering Geology and Foundations .....	3	2
Elem. Elec. Engineering.....	5	4
Sewer and Water Systems.....	3	2
Evidences of Religion.....	1	..

**SECOND HALF.**

	Hours Per Week	
	Class.	Lab.
Applied Mechanics .....	5	8
Materials of Construction.....	1	..
Heating and Ventilation.....	1	..
Lighting .....	1	..
Acoustics .....	1	..
Evidences of Religion.....	1	..

**VACATION—OFFICE WORK.****Fourth Year—Architectural Engineering.****FIRST HALF.**

	Hours Per Week	
	Class.	Lab.
Theory of Structures.....	5	..
Reinforced Concrete .....	5	..
Drainage .....	2	..
Evidences of Religion.....	1	..
Fire Proofing .....	1	..

**SECOND HALF.**

	Hours Per Week	
	Class.	Lab.
Theory of Structures.....	5	..
Thesis .....	..	6
Specifications and Working		
Drawing .....	1	..
Office Practice .....	1	..
Accounting and Business		
Administration .....	5	..
Evidences of Religion.....	1	..

**Third Year—General Architecture.****FIRST HALF.**

	Hours Per Week	
	Class.	Lab.
Applied Mechanics .....	5	4
Engineering Geology and Foundations .....	3	..
Architectural Design .....	..	4
Water Color .....	..	2
Freehand Drawing .....	..	2
History of Architecture.....	1	1
Evidences of Religion.....	1	..

**SECOND HALF.**

	Hours Per Week	
	Class.	Lab.
Applied Mechanics .....	5	..
Graphical Statics .....	..	1
Steriotomy .....	..	1
Architectural Design .....	..	4
Water Color .....	..	2
Freehand Drawing .....	..	2
History of Architecture.....	1	1
Evidences of Religion.....	1	..



**VACATION—OFFICE WORK.****Fourth Year—General Architecture.****FIRST HALF.**

	Hours Per Week	
	Class.	Lab.
Architectural Design ..	..	4
History of Architecture.....	1	1
History of Ornament.....	1	1
Water Color ..	..	2
Freehand Drawing ..	..	2
Landscape Architecture ..	1	..
Evidences of Religion.....	1	..

**SECOND HALF.**

	Hours Per Week	
	Class.	Lab.
Thesis ..	..	6
Specifications and Working		
Drawing ..	1	..
Office Practice ..	1	..
Evidences of Religion.....	1	..
History of Painting and		
Sculpture ..	1	..
Modeling ..	..	2
Freehand Drawing ..	..	2





